TECHNICAL MANUAL
No. 43-0001-28-3

HEADQUARTERS
DEPARTMENT OF THE ARMY
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DATA SHEETS FOR
GUNS, HOWITZERS, AND MORTARS
INTEROPERABLE AMMUNITION

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, US Army TACOM, Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-LSB, Picatinny Arsenal, New Jersey 07801-5001. A reply will be furnished directly to you.

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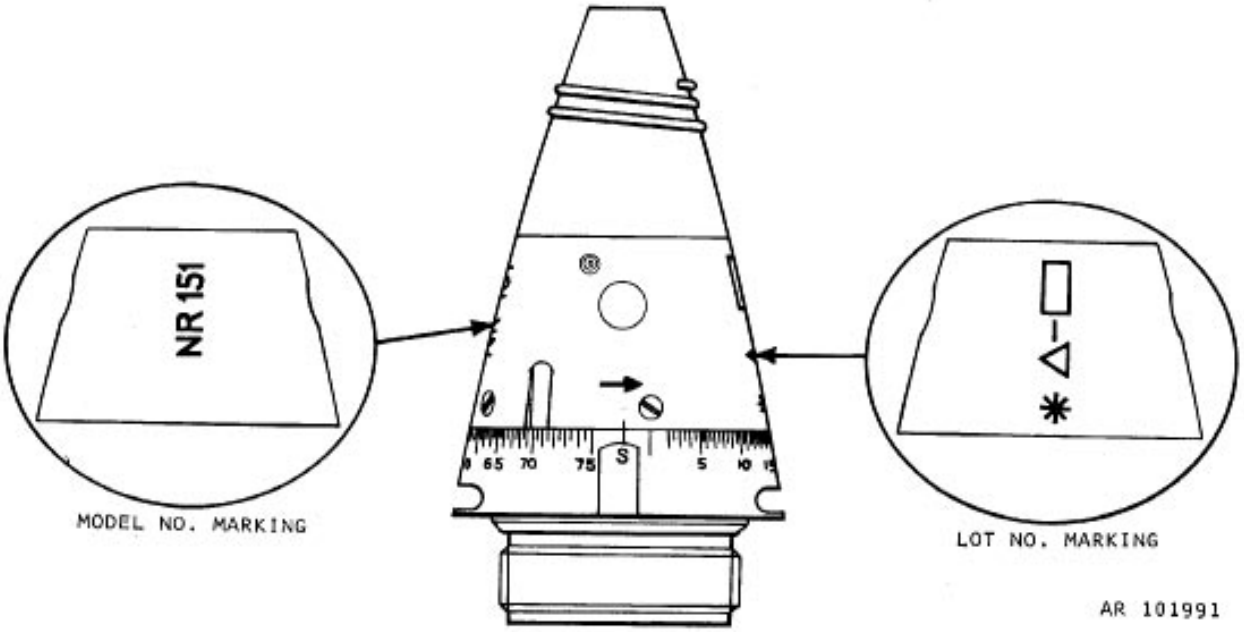
CHAPTER 5
FUZES

FUZE, MECHANICAL TIME: NR151: (NL)*



Type Classification:

*NL manufacture

Use:

Mechanical Time (MT) Fuze NR151 is used to detonate spin-stabilized projectiles fired from a 107mm (4.2 in.) mortar when a timed action is required.

Description:

The major portion of the movement assembly, providing the timing and firing functions of the fuze, is contained in the brass lower cap. The aluminum fuze body contains the explosive elements consisting of a primer and a relay, and carries the time setting scale graduated from 2 to 75 sec inscribed on the exterior. The threaded fuze base is assembled directly into the projectile without a booster. A pull wire extending through the body and the setback pin provide safety for shipping and handling.

Functioning:

When the fuze is set, turning the lower cap rotates the timing disc by means of the setting pin, engaged in a raised lug on the disc. Upon firing, setback permits the hammer spring to strike the raised lug and release the timing disc from the setting pin. Centrifugal force from projectile spin withdraws the interrupter and releases the detents securing the timing mechanism. When the timing disc has rotated for the time set, a notch turns the firing arm and permits the firing pin to strike the primer. The primer initiates the explosive train through a relay to the projectile.

Tabulated Data:

Type .....Mechanical Time (MT)
Weight .....0.64 kg (1.41 lb)
Length:V
  Visible .....95.2 mm (3.75 in.)
  Overall .....115.8 mm (4.56 in.)
Thread size .....43 mm (1.70 in.) 14NS-1

Temperature Limits:

Firing:
  Lower limit .....-40^{o}F (-40^{o}C)
  Upper limit.....+125^{o}F (+52^{o}C)

Storage:
  Lower limit .....-80.0^{o}F (-62.0^{o}C) (for not more than 3 days)
  Upper limit.....+160^{o}F (+70^{o}C) (for not more than 4 hr/day)

Packing.....8 fuzes in metal container; 2 containers in a wire-bound box
Packing Box:
  Weight.....19.9 kg (43.8 lb)
  Dimensions .....371 x 325 x 232 mm (14-5/8 x 12-13/16 x 9-1/8 in.)
  Cube.....0.03 m^3 (1.0 ft^3)

Shipping and Storage Data:

Storage class/SCG.....1.4B
DOT shipping class.....C
DOT designation.....TIME FUZES - HANDLE CAREFULLY
DODAC .....Not available
Drawing number .....Not available

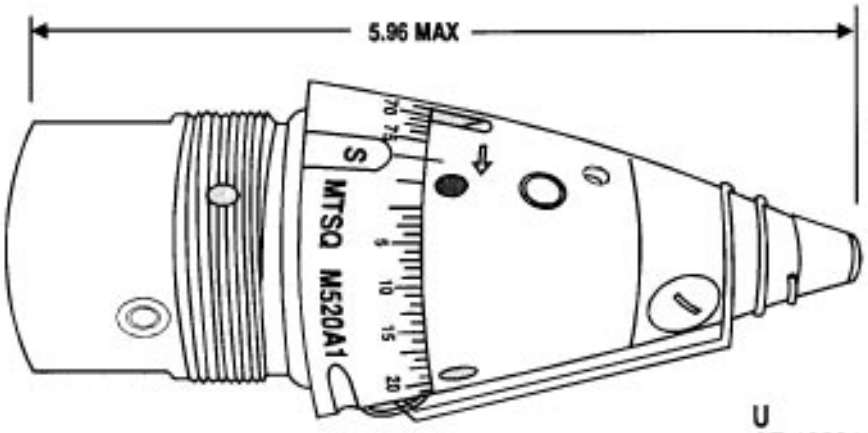
Limitations:

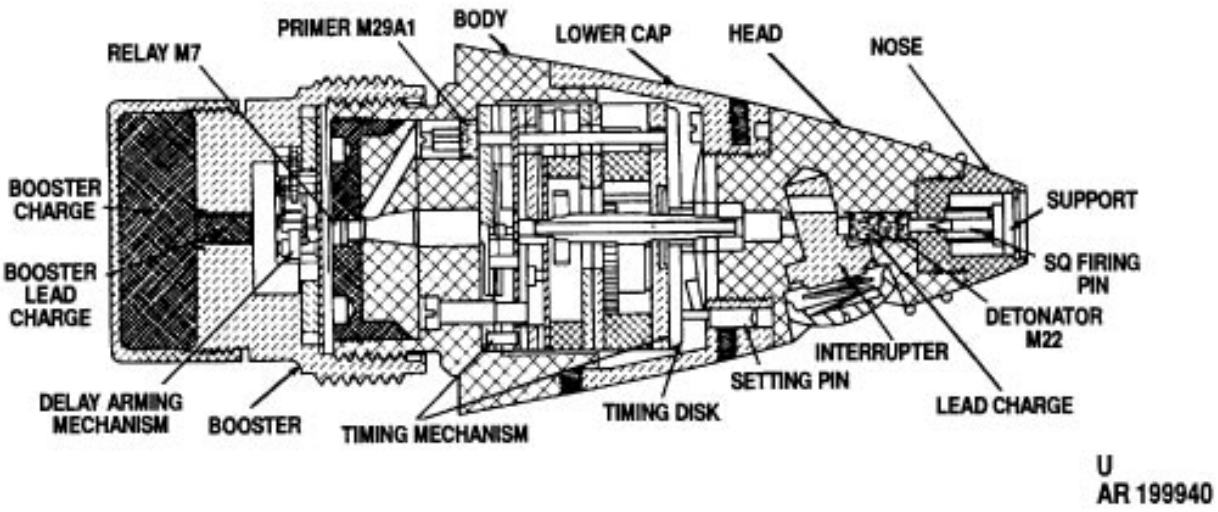
Do not use a fuze with a loose or cocked lower cap. Firing during heavy rainfall may result in premature functioning.

References:

Not available.

FUZE, MECHANICAL TIME AND SUPERQUICK: M520A1 (IT) AND M520 (UK)





Type Classification:

Std AMCTC 6697 dtd 1969

Use:

These dual purpose, mechanical time and superquick fuzes are used with ammunition calibers 90mm through 280mm, except 175mm. The fuze can be used to achieve either airburst or superquick impact detonation of the projectile.

Description:

The fuze consist of a movement assembly, a point detonator assembly, a lower cap, a body and a booster. The movement assembly contains a clockwork mechanism operated by centrifugal force acting on two gear segment weights. Springs assist in overcoming the inertia of the weights to assure functioning of the fuze at low projectile spin rates. The point detonator assembly housing the superquick element consists of the nose of the fuze containing firing pin and support, and the head of the fuze containing an interrupter, a detonator, and booster lead charge. The brass

lower cap contains provisions for releasing and setting the timing disk of the arming mechanism, and the cap is rotatable by a setting slot to provide for fuze time setting. The aluminum body houses a percussion primer and a relay. Graduations from S (for SAFE) to 0.5 through 75 seconds appear around the exterior. Fuzes are shipped with the SAFE mark aligned with the setting index on the lower cap, and with a pull wire attached to prevent inadvertent movement.

Functioning:

Turning the lower cap to set desired time in seconds prior to detonation simultaneously rotates the timing disk of the internal clockwork mechanism to correspond. Upon weapon firing, setback and centrifugal force release the mechanism until the timing disk has rotated to the preset time for detonation. Also upon weapon firing, centrifugal force withdraws the interrupter to arm the superquick detonation train, and actuates the delay arming of the booster. The purpose of the booster delay is to provide safe arming distance from the muzzle after weapon firing. When superquick impact action is desired, the fuze can be used as shipping, i.e. set in the S position, or may be set to a time greater than the projectile flight time.

Difference Between Models:

Fuze M520A1 is assembled with Booster M125A1 which provides a delay arming distance of 200 feet. Fuze M520 uses Booster M125 which provides 150 feet.

Tabulated Data:

Type .....MTSQ
Weight .....2.06 lb

Length:
- Visible .....3.75 in.
- Overall .....5.96 in.

Thread size .....2 in. - 12NS-1

Assembly Drawing Numbers:
- M520A1 .....8594044 Rev A
- M520 .....8594044 Rev O

Temperature Limits:

Firing:
- Lower limit .....-40^{o}F (-40^{o}C)
- Upper limit .....+125^{o}F (+52^{o}C)

Storage:
- Lower limit .....-80^{o}F (for not more than 3 days)
- Upper limit .....+160^{o}F (for not more than 4 hr/day)

*Packing.....8 fuzes in metal container; 2 containers in a wire-bound box
*NOTE: Fuze may be shipped attached to a cartridge.

*Packing Box:
Weight.....55.8 lb
Dimensions .....14-7/8 x 12-13/16 x 9-1/8 in.
Cube.....1.04 cu ft

*NOTE: See SC for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class .....(04) 1.2
Storage compatibility group.....B
DOT shipping class.....A
DOT designation.....DETONATING FUZES CLASS A EXPLOSIVES - HANDLE CAREFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES
DODAC 1390-N280

Explosive Components:

Time action .....Primer M29A1, Relay M7, Detonator M17, and Tetryl booster Charge
SQ action.....Detonator M22, Detonator Lead Charge, Relay M7, Detonator M17, and Tetryl Booster Charge

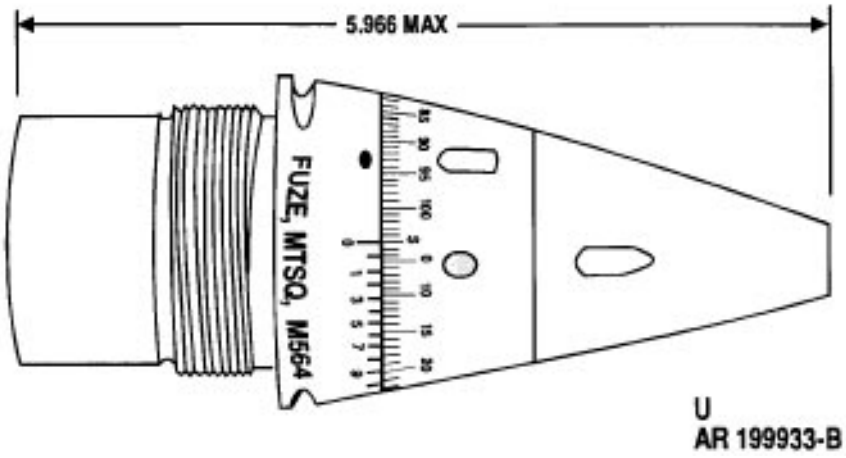
Limitations:

Firing during heavy rain may cause premature functioning of the fuze. Failure may occur when fuzes are set for airburst firing from 155mm Howitzers M1, M1A1, or M45 with firing charges 1 or 2, because setback may not be sufficient to release the timing mechanism. Such projectiles will detonate on impact through the superquick element.

References:

TM 9-1300-251-20
TM 9-1300-254-12
TM 9-2300-216-10
TM 9-2350-215-10
TM 9-2350-217-10
TM 9-2350-224-10

FUZE, MECHANICAL TIME AND SUPERQUICK: M564 (BE, IT, DE, GR)



Type Classification:

*US manufacture

Use:

Mechanical Time and Superquick Fuze M564 is used with 105mm, 155mm, and 8-inch (203mm) projectiles when a choice between time and superquick action is desired.

Description:

The fuze consists of a head, lower cap, body, and safety adapter. The head contains the point detonating assembly, consisting of firing pin and support cup, and superquick (SQ) detonator. The rotatable lower cap has a time scale graduated from 0 to 100 seconds and contains the setting pin and hammer spring parts of the timing movement. The greater part of the movement is a clockwork mechanism for controlling the time of fuze functioning and is located in the fuze body. The body also contains the time firing pin, a detonator and a relay, and is inscribed externally with a vernier scale and zero line for time settings. The safety adapter assembled to the base consists of a booster featuring a delayed arming mechanism and housing a detonator, a booster lead charge, and 330 grain (21.4g) tetryl booster charge.

Functioning:

When the fuze is set, turning the lower cap rotates the timing disc proportionately by means of the setting pin, engaged in a raised lug on the disc. Setback upon firing releases the hammer spring to strike the raised lug, releasing the timing disc from the setting pin. As projectile spin rate increases, centrifugal force moves the detents securing the movement, and the timing mechanism begins to run. At the same time, centrifugal force starts the delayed arming mechanism in the safety adapter (booster). The time required for booster arming will take the projectile at least 200 feet (60m) from the muzzle of the cannon. When the timing disc has rotated to the preset time, a notch in the disc engages the firing arm. The firing arm turns, moving the firing pin safety plate and causing the firing pin to strike the detonator and initiate the explosive train through the

relay, detonator, booster lead charge, and booster charge to the projectile. In the event superquick action (fired as shipped, set on "S") or timing mechanism malfunctions detonation will be initiated by the SQ firing pin striking the detonator.

Tabulated Data:

Type .....Mechanical Time and Superquick (MTSQ)
Weight .....0.95 kg (2.10 lb)

Length:
Visible .....95.2 mm (3.75 in.)
Overall .....147.8 mm (5.821 in.)

Thread size 2-12UNS-1A

Temperature Limits:

Firing:
Lower limit .....-40^{o}F (-40^{o}C)
Upper limit.....+125^{o}F (+52^{o}C)

Storage:
Lower limit .....-80^{o}F (-62^{o}C) (for not more than 3 days)
Upper limit.....+160^{o}F (+71^{o}C) (for not more than 4 hr/day)

Packing.....8 fuzes in metal containers in wirebound box

Packing Box:
Weight.....28.6 kg (63 lb)
Dimensions .....371 x 325 x 232 mm (14-5/8 x 12-13/16 x 9-1/8 in.)
Cube.....0.028 m^3 (1 ft^3)

Shipping and Storage Data:

Storage class/SCG.....1.1D
DOT shipping class.....A
DOT designation.....DETONATING CLASS A EXPLOSIVES - HANDLE CAREFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES
DODAC .....Not available

Limitations:

Fuzes manufactured prior to 1970 are to be set for 90 seconds if superquick (impact) action is desired; fuzes manufactured after 1970 can be fired or received (set "S") if SQ action is desired.

Premature functioning may occur downrange when the fuzes are fired in rainfall.

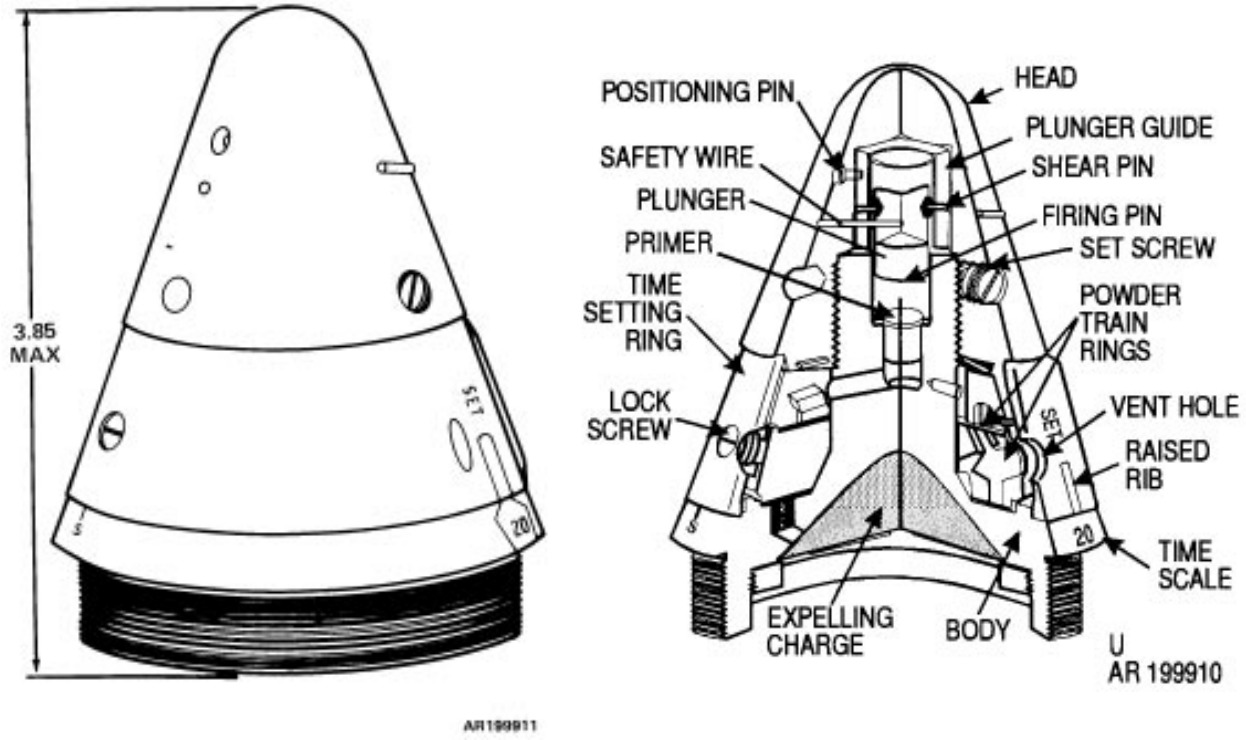
Fuzes are not to be set for times less than 2 seconds.

To avoid accidental functioning of the PD element, do not drop, roll or strike fuzes under any circumstances; packaged, unpackaged, or assembled projectile, and do not strike fuzed round against breech of weapon.

References:

SB 700-20
SC 1305/30-IL
TM 9-1015-203-12
TM 9-1015-234-12
TM 9-1025-200-12
TM 9-1300-251-20
TM 9-2300-216-10
TM 9-2350-217-10
TM 9-2350-217-10N

FUZE, TIME: M84 (NO, IT) AND M84A1 (DE, IT)



Type Classification:

Std AMCTC 6390 dtd 1965

Use:

Time Fuzes M84 and M84A1 are the single-purpose, powder train, selective-time type and are used with 81mm illuminating cartridges.

Description:

The fuze has a brass head containing an inertial plunger acting from setback and a brass body containing a primer, variable-time powder train rings, and a black powder expelling charge. An outer adjustment ring on the body has six vent holes and six raised ribs to adapt to fuze setter M25, and a setting rib for alignment with the desired time setting as chosen from the 0 to 25 second scale on the base. The time scale is in 1 second increments and 5 second increments are indicated by bosses. The raised setting rib and the body bosses enable the fuze to be set in the dark. As issued, the fuze is equipped with a safety wire to be removed before firing.

Functioning:

After removal of the safety wire, the inertial plunger is held by two shear pins passing through the plunger guide. Setback from weapon firing causes the plunger to shear these pins and strike the percussion primer at the base of the plunger guide. Ignition of the primer starts burning of the variable time powder train selected according to the time setting. The burning powder train then

ignites a black powder pellet and the expelling charge. The expelling charge ejects the parachute and illuminant assemblies through the base of the projectile.

Difference Between Models:

Fuze M84A1 has a tungsten compound delay train and a graduated scale of 50 seconds in two-second intervals. Otherwise, models M84 and M84A1 are identical.

Tabulated Data:

Type .....T
Weight .....1.82 lb
Length:
  Visible .....3.25 in.
  Overall .....3.85 in.
Thread size 2.4- 18NS-1
Assembly Drawing
  Numbers:
    M84A1 9232784
    M84 9205598

Temperature Limits:

Firing:
  Lower limit .....-65^{o}F (-53.8^{o}C)
  Upper limit .....+145^{o}F (+62.8^{o}C)

Storage:
  Lower limit .....-65.0^{o}F (-53.8^{o}C)
  Upper limit .....+145.0^{o}F (+62.8^{o}C)

Packing .....Fuze is assembled with the cartridge and is not a separate item of issue

Shipping and Storage Data:

Not applicable

Explosive Components:

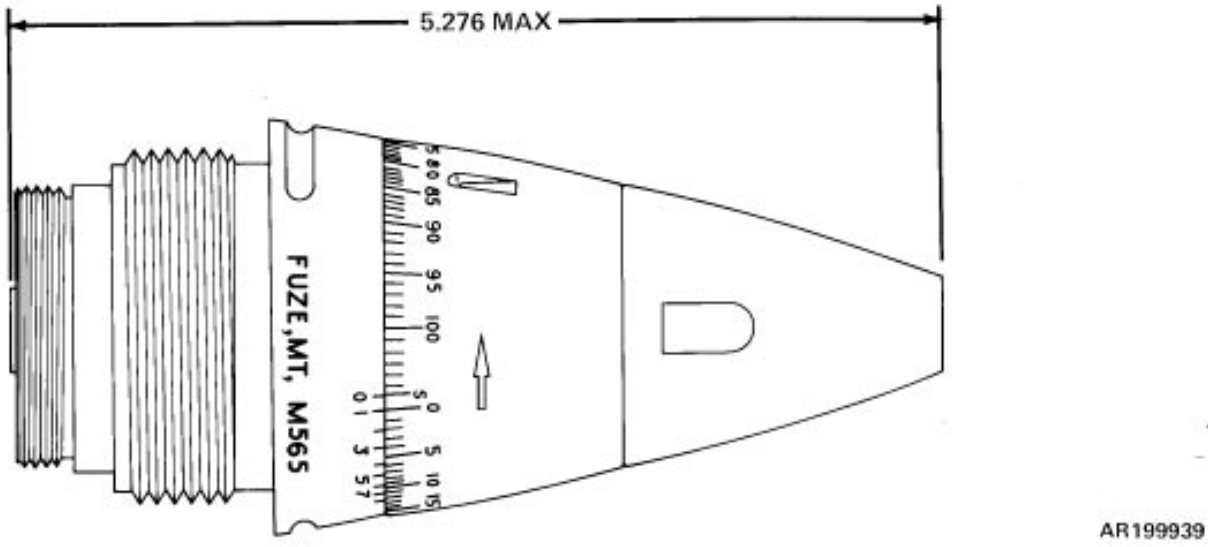
M84: Primer M39A1, black powder time-train rings, black powder pellet, and black powder expelling charge.

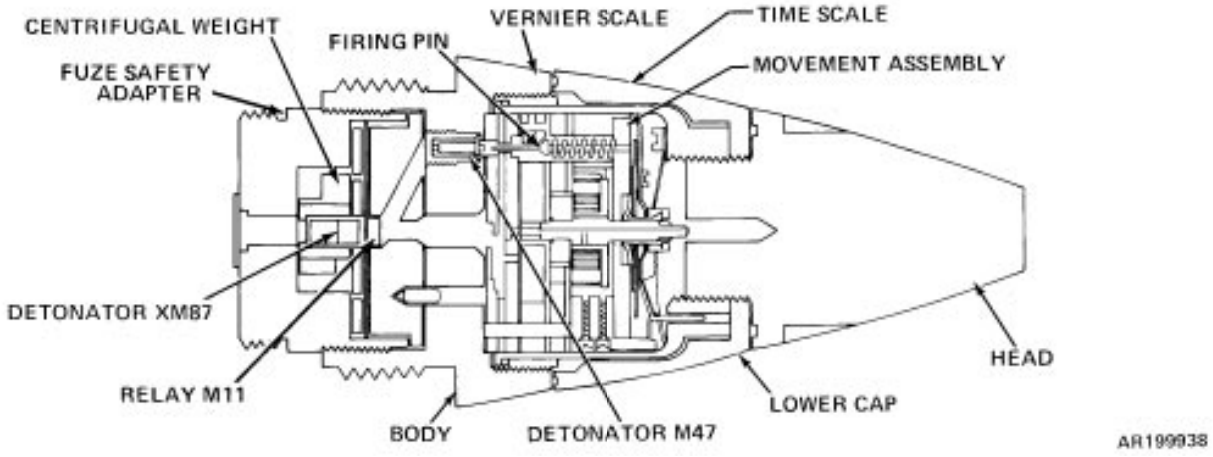
M84A1: Primer M39A1, tungsten compound time-train rings, black pellet and black powder expelling charge.

References:

TM 9-1015-200-12

FUZE, MECHANICAL TIME: M565 (NO, GR)





Type Classification:

Std AMCTC 1874 dtd 1964

Use:

Mechanical Time Fuze M565 is used to detonate a variety of spin-stabilized projectiles for cannons of 105mm through 8-inch, except 175mm, when superquick point detonating capability is not a requirement.

Description:

The fuze consists of a solid steel head threaded into a steel lower cap containing the timing movement, and a steel body containing a detonator. A safety adapter containing a relay and a detonator in addition to an interrupter assembly is threaded into the base of the fuze body. The tim-

ing movement is a spring-driven clockwork mechanism secured in the unarmed position by setback pins and centrifugal detents. A time scale graduated from 0 to 100 seconds is inscribed on the rotatable lower cap, and vernier scale to permit setting accuracy to 0.1 second appears on the base. The safety adapter interrupter mechanism in the base consists of two centrifugal weights which prevent alignment of the detonator with the relay until a safe arming distance of at least 200 feet from the muzzle is reached.

Functioning:

Upon firing, setback causes the hammer spring to strike the upraised lug of the timing disk, flattening the lug and releasing the disk from the setting pin. When sufficient centrifugal force has developed, the detents holding the escapement lever of the movement assembly and the rotor of the delayed-arming safety adapter move outward, leaving the escapement components free to run. Simultaneously, centrifugal force actuates the arbor lock, which disengages from the arbor and thus releases the mainspring. As the mainspring drives the movement, the rate of rotation of the arbor and, therefore, of the timing disk is governed by the escapement through the gear train. When the notch in the rotating timing disk reaches the upright of the firing arm, the firing arm turns permitting the firing pin safety plate to swing out from under the firing pin flange, allowing the firing pin to strike the detonator. Detonator M47 initiates the explosive train through the relay and detonator to the projectile.

Tabulated Data:

Type .....MT
Weight .....2.05 lb

Length:
Visible .....3.77 in.
Overall .....5.276 in.

Thread size .....2.00 in.-12NS-1 (R)
Assembly Dwg. No. 10522991

Temperature Limits:

Firing:
Lower limit .....-40^{o}F (-40^{o}C)
Upper limit.....+125^{o}F (+52^{o}C)

Storage:
Lower limit .....-80^{o}F (for not more than 3 days)
Upper limit.....+160^{o}F (for not more than 4 hr/day)

*Packing.....8 fuzes in metal container; 2 containers in a wire-bound box

*Packing Box:
Weight.....54.6 lb
Dimensions .....14-7/8 x 12-13/16 x 9-1/8 in.
Cube.....1.0 cu ft

*NOTE: See SC for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class 1.4
Storage compatibility group.....B
DOT shipping class.....C
DOT designation.....TIME FUZES - HANDLE CAREFULLY
DODAC 1390-N248

Explosive Components:

Detonator M47, Relay M11, and Detonator XM87.

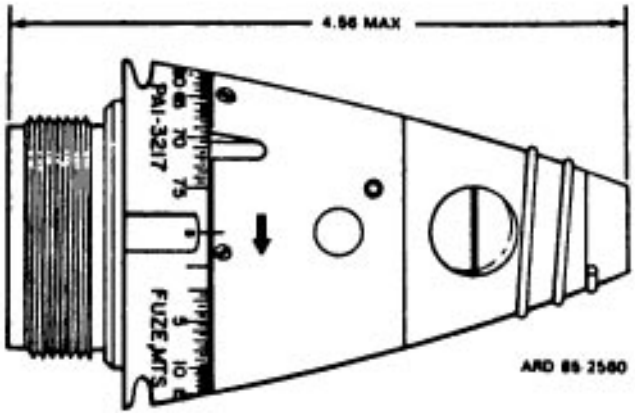
Limitations:

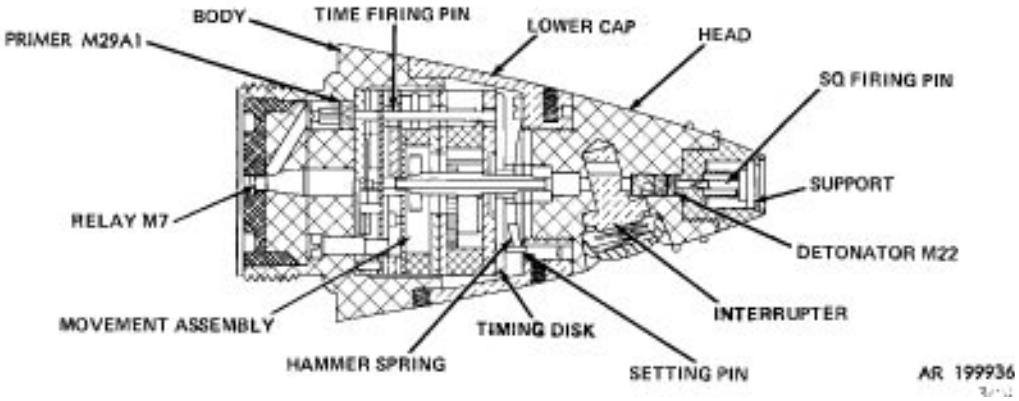
None

References:

SC 1340/98-IL
TM 9-1015-203-12
TM 9-1015-234-12
TM 9-1025-200-12
TM 9-1300-251-20
TM 9-1300-254-12
TM 9-2300-216-10
TM 9-2350-210-12
TM 9-2350-215-10
TM 9-2350-217-10
TM 9-2350-217-10N

FUZE, MECHANICAL TIME AND SUPERQUICK: M501A1 (OR M501) (GR)





Type Classification:

Cont - MSR11756003 - M501A1
OBS - MSR11756003 - M501

Use:

Mechanical Time and Superquick Fuzes M501A1 and M501 are a dual purpose type used to detonate spin-stabilized projectiles fired from 105mm and 155mm howitzers and from 4.2 inch mortars when a choice of timed or superquick action is required.

Description:

The aluminum head of the fuze houses the superquick point detonating assembly consisting of firing pin and support, a detonator, and a lead charge. An interrupter activated by centrifugal force from projectile rotation provides bore safety. The major portion of the movement assembly, providing the timing and firing functions of the fuze, is contained in the brass lower cap. The aluminum fuze body contains the explosive elements consisting of a primer and a relay, and carries the time setting scale graduated from 2 to 75 seconds inscribed on the exterior. The threaded fuze base is assembled directly into the projectile without a booster. A pull wire extending through the body and the setback pin provide safety for shipping and handling.

Functioning:

When the fuze is set, turning the lower cap rotates the timing disc by means of the setting pin, engaged in a raised lug on the disc. Upon firing, setback permits the hammer spring to strike the raised lug and release the timing disc from the setting pin. Centrifugal force from projectile spin withdraws the interrupter and releases the detents securing the timing mechanism. When the timing disc has rotated for the time set, a notch turns the firing arm and permits the firing pin to strike the primer. The primer initiates the explosive train through a relay to the projectile. If superquick action was preselected, the superquick firing pin strikes the detonator upon impact to initiate the explosive train.

Difference Between Models:

The time scale graduations on the M501 fuze are from 3 to 75 seconds.

Tabulated Data:

Type .....MTSQ
Weight .....1.41 lb
Length:
  Visible .....3.75 in.
  Overall .....4.56 in.

Thread size 1.70 in.-14NS-1
Assembly Dwg. No. 73-7-136

Temperature Limits:

Firing:
  Lower limit .....-40^{o}F (-40^{o}C)
  Upper limit.....+125^{o}F (+52^{o}C)

Storage:
  Lower limit .....-80^{o}F (-62.2^{o}C) (for not more than 3 days)
  Upper limit.....+160^{o}F (+71.1^{o}C) (for not more than 4 hr/day)

*Packing.....8 fuzes in metal container; 2 containers in a wire-bound box

*Packing Box:
  Weight.....43.8 lb
  Dimensions .....14-5/8 x 12-13/16 x 9-1/8 in.
  Cube.....1.0 cu ft

*NOTE: See SC for complete packing data including NSN's.

Shipping and Storage Data:

Storage class/SCG	1.4B
DOT shipping class	C
DOT designation	COMBINATION FUZES - HANDLE CAREFULLY
DODAC	1390-N276

Explosive Components:

Detonator M22, tetryl lead charge, and Relay M7.

Limitations:

Do not use a fuze with a loose or cocked lower cap. Firing during heavy rainfall may result in premature functioning. When firing for airburst from 155mm Howitzers M1, M1A1, or M45, failures may occur with charges 1 or 2, because of insufficient setback force to release the timing mechanism. However, the fuze will then function on impact.

The M501/M501A1 fuze is not dropsafe. Dropping or rough handling of projectile assembled with fuze MTSQ M501/M501A1 can and has resulted in fuze functioning and expulsion of projectile base plate and contents.

References:

SB 700-20
SC 1340/98-IL
TM 9-1015-203-12
TM 9-1015-215-12
TM 9-1015-234-10
TM 9-1025-200-12
TM 9-1025-211-10
TM 9-1300-251-20
TM 9-1300-251-34
TM 9-2350-217-10N
TM 9-2350-257-10
TM 9-2350-303-10
TM 43-0001-28-2

FUZE, DETONATING: DM211 (GE) AND NORWAY (NO)

AR 101919

Use:

Point Detonating Fuze DM211 is intended for use only with 155mm and 203mm HE projectiles at all charges, and is structurally designed to withstand the acceleration forces involved.

Description:

Fuze DM211 is similar to the US Fuze M557. A superquick (SQ) element in the head consists of a firing pin, firing pin support and detonator. A thin wall ogive surrounding the superquick flash tube is assembled to the fuze body. The fuze body contains a delay plunger assembly and selective setting device for superquick or delay action. The delay plunger assembly includes a firing pin and delay element, consisting of a primer, black powder delay charge and a relay. The DM42 booster consists of a body having external threads to fit projectiles having 2-inch diameter, 12 threads per inch cavities. The DM42 booster internal configuration and mechanism is designed to delay booster arming until the projectile is approximately 50m (55 yd) from the muzzle of the weapon.

Functioning:

After the projectile has left the muzzle of the gun, centrifugal force releases the flash tube interrupter, thus opening the flash tube. At the same time, the delay plunger is armed in prepara-

tion for impact by withdrawal of the plunger pins, also by centrifugal force. The delay mechanism of the booster provides an arming distance of approximately 50m (55 yd). Upon impact, the superquick firing pin is driven against a detonator, exploding the projectile. Should the superquick element fail, the delay train will still function, thus avoiding a dud. When the fuze has been preset for delay, the superquick element will still function, but will have no effect because the interrupter blocks the flash tube. Projectile detonation will occur through the delay element.

Tabulated Data:

Type .....PD
Weight .....0.988 kg (2.17 lb)
Length:
  Visible .....96 mm (3.84 in.)
  Overall .....152 mm (6.08 in.)

Temperature Limits:

Firing:
  Upper limit.....+125.0^{o}F (+52^{o}C)

Storage:
  Upper limit.....+160^{o}F (+71.1^{o}C)

Packing15 fuzes per box

Packing Box:
  Weight.....22.5 kg (49.5 lb)
  Dimensions .....422 x 240 x 220 mm (16.8 x 9.6 x 8.8 in.)
  Cube.....0.22 m^3 (0.78 ft^3)

Shipping and Storage Data:

Storage class/SCG.....1.1B
DOT shipping class.....A
DOT designation.....DETONATING FUZES - CLASS A EXPLOSIVES - HANDLE CAREFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES
DODAC .....Not available

Limitations:

Premature functioning can occur when fuzes are fired in heavy rainfall.

References:

Not available

FUZE, POINT DETONATING: DM241 (GE)

Use:

Point Detonating Fuze DM241 is intended for use only with 175mm and 203mm HE projectiles at all charges, and is designed to withstand structurally the acceleration forces involved.

Description:

Fuze DM241 consists essentially of Fuze DM211 modified with an epoxy filler in the ogive cavity for reinforcement. A superquick (SQ) element in the head consists of a firing pin, firing pin support and detonator. The body of the fuze is epoxy filled within the thin-walled ogive. The fuze body contains a delay plunger assembly and a selective setting device for superquick or delay action. The delay plunger assembly includes a firing pin and delay element consisting of a primer, black powder delay charge and a relay. The DM42 booster consists of a brass booster body having 51mm (2-in.) diameter, 12 threads per inch cavities, and internal threads to receive fuzes having 43mm (1.7-in.) diameter, 14 threads per inch. An aluminum booster cup containing a tetryl booster pellet is threaded to the booster body. The DM42 booster internal configuration is that of an unarmed (out of line) position by centrifugal detents and a gear train mechanism which provides for delayed arming of the booster assembly until the projectile is approximately 66m (72.6 yd) from the muzzle, depending upon the weapon and charge being fired.

Functioning:

No action occurs until after the projectile has left the muzzle of the gun, when centrifugal force releases the flash tube interrupter, thus opening the flash tube. At the same time, the delay plunger is armed in preparation for impact by withdrawal of the plunger pins, also by centrifugal force. The delay mechanism of the booster provides an arming distance of 66 meters. Upon impact, the superquick firing pin is driven against a detonator, exploding the projectile. Should the superquick element fail, the delay train will still function, thus avoiding a dud. When the fuze has been preset for delay, the superquick element will still function but will have no effect because the interrupter blocks the flash tube. Projectile detonation will occur through the delay element.

Tabulated Data:

Type .....PD
Weight .....0.988 kg (2.17 lb)

Length:
Visible .....96 mm (3.84 in.)
Overall .....152 mm (6.08 in.)

Temperature Limits:

Firing:
Upper limit.....+125^{o}F (+52^{o}C)

Storage:
Upper limit.....+160^{o}F (+71.1^{o}C)

Packing1.....5 fuzes per box

Packing Box:
Weight.....22.5 kg (49.5 lb)
Dimensions .....420 x 240 x 220 mm (16.8 x 9.6 x 8.8 in.)
Cube.....0.22 m^3 (0.78 ft^3)

Shipping and Storage Data:

Storage class/SCG.....1.1B
DOT shipping class.....A
DOT designation.....DETONATING FUZES - CLASS A EXPLOSIVES - HANDLE CAREFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES
DODAC .....Not available

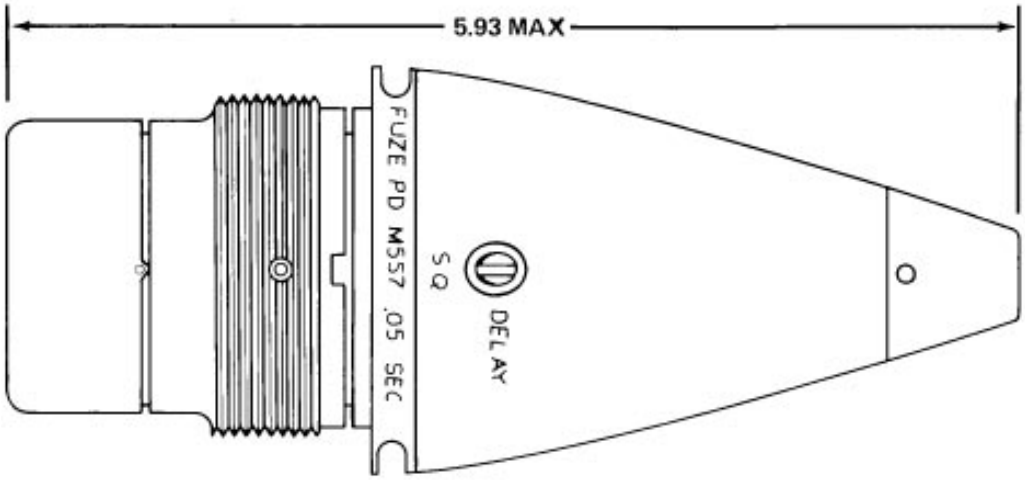
Limitations:

Premature functioning can occur when fuzes are fired in heavy rainfall.

References:

Not available

FUZE, POINT DETONATING: M557 (NL*, BE*, IT, GR, SP)



Type Classification:

*US manufacture

Use:

Point Detonating Fuze M577 is a selective superquick or 0.05 second delay impact fuze designed for use in ammunition for guns of 75mm through 155mm; 75mm and 105mm rifles; 75mm through 8-inch (203mm) howitzers and for 4.2-inch (107mm) mortars.

Description:

The M557 fuze consists of Fuze M48A3 assembled with the M125A1 booster. The point detonating head assembly contains a firing pin support which prevents initiation of Detonator M24 until impact. The body contains an M1 delay plunger assembly and an interrupter assembly with a setting sleeve which provides a means of setting or selecting superquick (PD) or delay functioning. The delay plunger assembly includes a firing pin and Delay Element M2. The delay element includes Primer M54, a black powder delay charge and Relay M7. The head assembly is attached to the body by means of the flash tube which also positions the fuze windshield or ogive. The ogive is a thin-walled steel stamping utilized to provide an aerodynamic shape to the fuze. The M125A1 booster consists of a brass booster body having external threads to fit projectiles having 2-inch (51mm diameter, 12 threads per inch and internal threads to receive fuzes having 1.7-inch (43mm) diameter, 14 threads per inch. An aluminum booster cup containing a (340 grain) (22g) tetryl booster pellet is threaded to the booster body. The M125A1 booster configuration is that of an eccentric rotor containing an M17 detonator held in an unarmed (out of line) position by centrifugal detents and gear train mechanism which provides for delayed arming of the booster assembly for approximately 200 feet (60m) depending upon the weapon and charge being fired.

Functioning:

Upon firing, centrifugal force is utilized to arm the fuze. Centrifugal force retracts the detents holding the rotor in the unarmed position allowing it to turn against the gear train mechanism

which controls the turning speed of the rotor until the rotor is in the armed position. Once in the armed position, the rotor is locked in position by a spring loaded pin and the M17 detonator is aligned with the detonation train of the fuze. Simultaneously, centrifugal force will arm the delay plunger assembly and retract the flash tube interrupter unless the fuze is set delay. If the fuze is set delay, the flash tube interrupter will not retract and the flash from the superquick element will be prevented from initiating the explosive train of the booster. The fuze is initiated upon impact with the target; the firing pin is driven into the M24 detonator which flashes through to the M17 detonator, activating the lead charge and booster pellet. If set delay, the flash tube is blocked and the M17 detonator is activated by the delay element. The delay mechanism of the booster provides an arming distance of approximately 200 feet (60m), depending upon the weapon employed.

Tabulated Data:

Type .....Point Detonating (PD)
Weight .....0.98 kg (2.15 lb)
Length:
  Visible .....150.6 mm (5.93 in.)
  Overall .....94.5 mm (3.72 in.)

Temperature Limits:

Firing:
  Lower limit .....-65^{o}F (-53^{o}C)
  Upper limit.....+160^{o}F (+71^{o}C)

Storage:
  Lower limit .....-80^{o}F (-62^{o}C) (for not more than 3 days)
  Upper limit.....+160^{o}F (+71^{o}C) (for not more than 4 hr/day)

Packing.....8 fuzes in metal container; 2 containers in wooden box

Packing Box:
  Weight.....25.3 kg (55.8 lb)
  Dimensions .....371 x 325 x 232 mm (14-5/8 x 12-13/16 x 9-1/8 in.)
  Cube.....0.028 m^3 (1 ft^3)

Shipping and Storage Data:

Storage class/SCG.....1.1B
DOT shipping class.....A
DOT designation.....DETONATING FUZES - CLASS A EXPLOSIVES - HANDLE CARFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES
DODAC .....Not available
Drawing number .....Not available

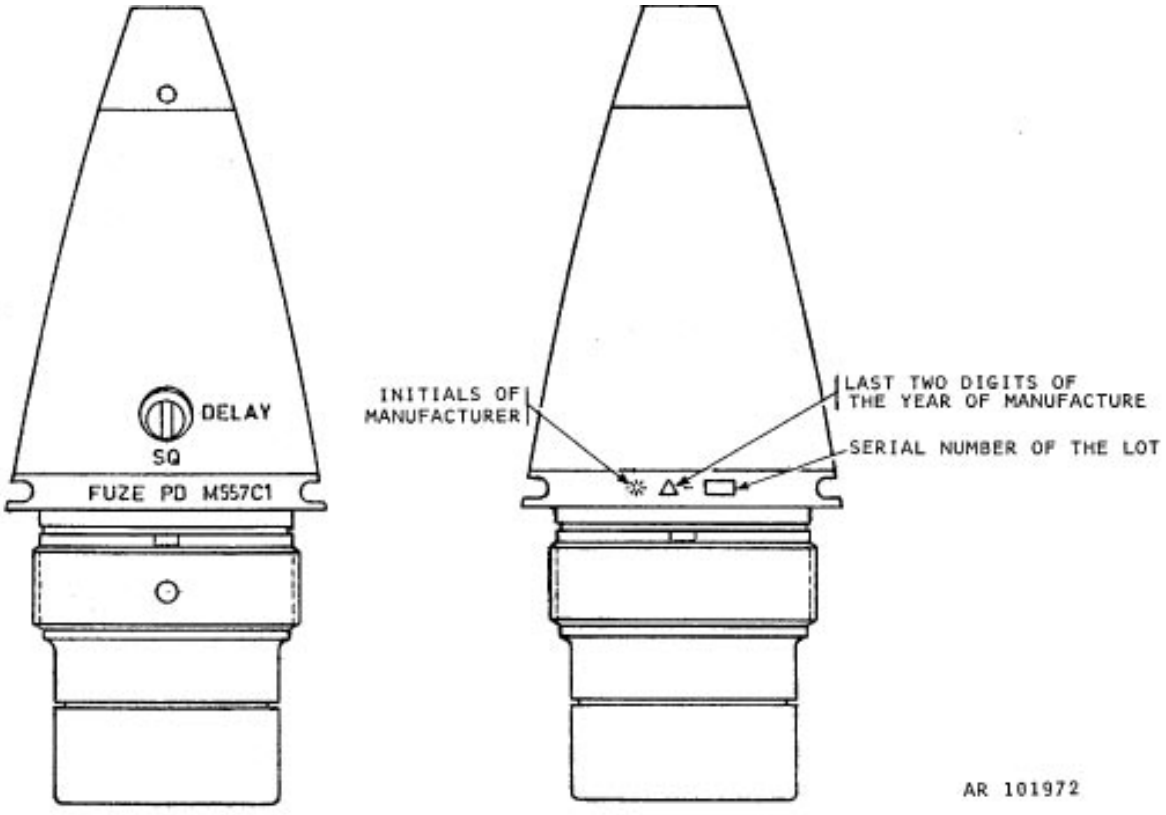
Limitations:

Premature functioning can occur when fuzes are fired in heavy rainfall. Duds may occur when set for delay in low zones of fire (155mm and 8-inch (203mm) Zones 1 and 2). When set SQ normal functioning can be expected. To prevent duds in 4.2-inch (107mm) cartridges, fire zones (increments) should not be fewer than seven.

References:

SB 700-20
SC 1340/95-IL
TM 9-1015-203-12
TM 9-1015-234-12
TM 9-1025-200-12
TM 9-1300-251-20
TM 9-2300-216-10
TM 9-2350-217-10
M 9-2350-217-10N

FUZE, POINT DETONATING: M557C1 (NL, DE)



Use:

Point Detonating (PD) Fuze M577C1* is a selective superquick or 0.05 second delay impact fuze. It is designed for use in ammunition for 75mm through 155mm guns; 75mm and 105mm rifles; 75mm through 203mm (8-inch) howitzers and for 107mm (4.2-inch) mortars.

*PD Fuze M557C1 is a US M557 fuze with booster M125C1 of Italian manufacture. This booster is the same design as the US M125A1 except it is fitted with a setback pin which locks one of the spin locks.

Description:

The M557C1 Fuze consists of Fuze M48A3 assembled with the M125C1 booster. The PD head assembly contains a firing pin held in position by a firing pin support which prevents initiation of Detonator M24 until impact. The fuze body contains an M1 delay plunger assembly and an interrupter assembly with a setting sleeve which provides a means of setting or selecting PD (Superquick) or delay functioning. The delay plunger assembly includes a firing pin and Delay Element M2. The delay element includes Primer M54, a black powder delay charge and Relay M7. The head assembly is attached to the body by means of the flash tube which also positions the fuze windshield or ogive. The ogive is a thin-walled steel stamping utilized to provide an

aerodynamic shape to the fuze. The M125C1 booster consists of a brass booster body having external threads to fit projectiles having 51mm (2-inch) diameter, 12 threads per inch and internal threads to receive fuzes having 43mm (1.7-inch) diameter, 14 threads per inch. An aluminum booster cup containing a 22g (340 grain) tetryl booster pellet is threaded to the booster body. The M125C1 booster internal configuration is that of an eccentric rotor containing an M17 detonator held in an unarmed (out of line) position by centrifugal detents and gear train mechanism which provides for delayed arming of the booster assembly for approximately 60mm (200 feet) depending upon the weapon and charge being fired.

Functioning:

Upon firing, centrifugal force is utilized to arm the fuze. Centrifugal force retracts the detents holding the rotor in the unarmed position allowing it to turn against the gear train mechanism which controls the turning speed of the rotor until the rotor is in the armed position. Once in the armed position, the rotor is locked in position by a spring loaded pin and the rotor is aligned with the detonation train of the fuze. Simultaneously, centrifugal force will arm the M1 delay plunger of the fuze and retract the flash tube interrupter unless the fuze is set delay, in which instance, the flash tube interrupter will not retract and the flash from the nose superquick element will be prevented from initiating the explosive train of the booster. The fuze is initiated upon impact with the target; the firing pin of the fuze head assembly is driven into the M24 detonator which flashes through to the M17 detonator, activating the lead charge and booster pellet. If set on delay, the flash tube is blocked and the M17 detonator is activated by the delay element. The delay mechanism of the booster provides an arming distance of approximately 60m (200 feet), depending upon the weapon employed.

Tabulated Data:

Type .....PD
Weight.....0.98 kg (2.15 lb)

Length:
  Visible.....150.6 mm (5.93 in.)
  Overall .....94.5 mm (3.72 in.)

Temperature Limits:

Firing:
  Lower limit .....-65^{o}F (-53^{o}C)
  Upper limit.....+160.0^{o}F (+71.0^{o}C)

Storage:
  Lower limit .....-80.0^{o}F (-62.0^{o}C) (for not more than 3 days)
  Upper limit.....+160.0^{o}F (+71.0^{o}C) (for not more than 4 hr/day)

*Packing.....1 fuze in metal container;15 containers in wooden box OR 8 fuzes in metal container; 2 containers in box

Packing Box (wood):
Weight.....23 kg (50.7 lb)
Dimensions .....406 x 246 x 216 mm (16 x 9.7 x 8.5 in.)
Cube.....0.02 m^3 (0.76 ft^3)

*Packing box information not available.

Shipping and Storage Data:

Storage class/SCG.....1.1B
DOT shipping class.....A
DOT designation.....DETONATING FUZES - CLASS A EXPLOSIVES - HANDLE CAREFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES
DODAC .....Not available
Drawing number .....Not available

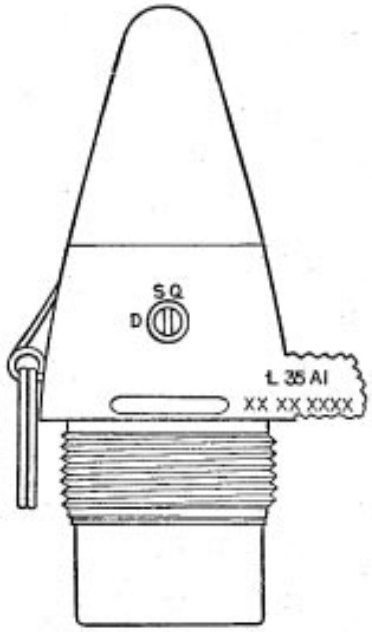
Limitations:

Premature functioning can occur when fuzes are fired in heavy rainfall. Duds may occur when set for delay in low zones of fire (155mm Zones 1 and 2). When set Superquick (SQ) normal functioning can be expected.

References:

SB 700-20
SC 1340/95-IL
TM 9-1015-203-12
TM 9-1015-234-12
TM 9-1025-200-12
TM 9-1300-251-20
TM 9-2300-216-10
TM 9-2350-217-10
TM 9-2350-217-10N

FUZE, PERCUSSION (PD): L35A1 (UK) (CA)



Use:

The interoperability agreement authorizes the L15A4 cartridge fuzed with the L35A1 fuze to be fired from the US M29 and M29A1 mortar.

Description:

The L35A1 fuze is a percussion point detonating (PD) type with the setting bolt permitting the selection of optimal superquick or delayed action detonation.

Tabulated Data:

Type .....Percussion (PD)
Length:
Visible .....0.58 kg (1.27 lb) approx
Overall .....94.25 mm (3.77 in.)

Thread size 2.00-12UNS-1A

Temperature Limits:

Firing:
Lower limit .....-65^{o}F (-53^{o}C)
Upper limit.....+165^{o}F (+73^{o}C)

Storage:
- Lower limit .....Not available
- Upper limit.....Not available

Packing.....50 fuzes/wooden box
Packing Box:
- Weight (approx).....33.0 kg (73.5 lb)
- Dimensions .....Not available
- Cube.....Not available

Shipping and Storage Data:

Storage class/SCG.....1.1B
DOT shipping class.....A
DOT designation.....1390-N308 (PDM524) 1390-N334 (PDM567) DETONATING FUZES - CLASS A EXPLOSIVE - HANDLE CAREFULLY - DO NOT STORE OR LOAD WITH ANY HIGH EXPLOSIVES

Limitations:

Not available

References:

Not available